

POWERCRETE® DD

Product Information

Product description: Powercrete® DD is a solvent free epoxy ARO (Abrasion Resistant Overlay) polymer concrete coating designed to protect FBE (Fusion Bonded Epoxy) coated pipe for directional drilling, thrust (slick) bore and pull-through applications. The product is applied directly on the FBE mainline coating of a pipeline to provide a high performance protection to the system under rough terrain conditions. Powercrete® DD offers exceptional abrasion, strength, hardness, impact resistance and adhesion properties and has therefore been specified and installed successfully in many directional drilling projects as the number one abrasion resistant overlay (ARO) for over twenty years.

Features:

- 100% Solids Epoxy
- no VOC
- Excellent adhesion to FBE
- Excellent mechanical properties
- Superior abrasion resistance
- Widely used in directional drill and thrust bore applications.
- Suitable for pipeline operating temperatures to 55°C (130°F)
- Can be sprayed and hand applied up to 500micron (20mils) in one multi-pass layer

Application examples

Application: ARO coating system on top of FBE for directional- and thrust (slick) bore drilling applications and other severe abrasive pipeline applications. The product can also be used as a direct to metal (DTM) system to protect other steel substrates when abrasion is a concern.

Product Performance (processing under laboratory conditions)

	Test Method	Typical Value
Cathodic Disbondment	ASTM G8 (25°C) (77°F) 90 days	10mm (on bare steel)
	ASTM G95 (55°C) (131°F) 30 days	10mm (on bare steel)
Flexibility	NACE RP-0394	>0.3"/PD at 23°C/73°F
Impact Resistance	ASTM-G14	>80 in/lb/9.0Nm/9.0J at 40mils/1000micron.
Adhesion to FBE	ASTM D4541	2500psi/17MPa
Adhesion to Steel	ASTM D4541	3000psi/20MPa
Abrasion Resistance	ASTM D4060	>1250 cycles a mil (>50 cycles/micron)
Resistance to Acids and Alkalies	ASTM C581	Excellent
Dielectric Strength	ASTM D149	580V/mil (23V/micron)
Thin Film Water Absorption	ASTM D570	0.40% (24 hours)
Hardness	ASTM D2240	83 Shore D

General Product Information

Colour	Tan and Black
Finish	Gloss
Primer	Self-priming on FBE and DTM
Dry Film Thickness	20mils (500micron) for most applications
Coverage Rate (theoretical)	81.5 sq.ft/USG at 20mils (500micron)DFT. 2,00m ² /l at 20mils (500micron)DFT.
Volume Solids	100%
VOC Content	0 g/l
Flash Point	>199°F (>93°C) mixed product
Mixing Ratio	9.75:1 (A to B in volume) 100:5.5 (A to B by weight)
Potlife	22 minutes at 25°C (77°F)

Application Instruction: Surface Preparation Steel

General	The area to be coated has to be clean, dry and free from oil, grease and dust. All contamination that could interfere with the adhesion of the coating has to be removed according to SSPC-SP1.
Preventing condensation on the substrate	Prior and during the surface preparation, the temperature of the substrate(s) must be at least 5°F (3°C) above the dew point.
Abrasive Blasting	Minimum Sa2½ (SSPC-SP10/ NACE2) .
Recommended Surface Profile	3-4mils (75-100micron) angular profile.

Application Instruction: Surface Preparation FBE

General	The area to be coated has to be clean, dry and free from oil, grease and dust. All contamination that could interfere with the adhesion of the coating has to be removed according to SSPC-SP1.
Preventing condensation on the substrate	Prior and during the surface preparation, the temperature of the substrate(s) must be at least 5°F (3°C) above the dew point.
Abrasive Blasting	Sa1 (SSPC-SP7/NACE4, sweep-blasting for optimum performance.
Recommended Surface Profile	Minimum 2mils (50micron) angular profile.

Application Safety

General	Read the Product Data Sheet and follow the caution statements on the Material Safety Data Sheet . Personnel who will come into contact with the product should be using appropriate protection equipment. Follow national safety guidelines.
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Application Conditions

	Product	Surface	Ambient	Humidity
Optimum	130°F (55°C)	70-90°F (21-32°C)	70-90°F (21-32°C)	25-50%
Minimum	122°F (50°C)	50°F (10°C)*	35°F (2°C)	0%
Maximum	140°F (60°C)	180°F (82°C)	120°F (49°C)	85%

* If the surface to be coated is below 10°C (50°F), preheating of the substrate is recommended. Preheat temperatures should not exceed 82°C (180°F). Prior and during the application, the temperature of the substrate must be at least 3°C above the dew point.

Application Instruction: Plural Component Spray

Step 1	Mix the Part A and B until uniform in consistency.
Step 2	Use only heated plural component Airless equipment capable to maintain a 9.75:1 ratio in volume and 1.25 Gallon/4.73 Liter per minute output, with heated drums, insulated (heated) hoses and minimum 170bar (2500psi.) fluid pressure for Part A and 124bar (1800psi) for Part B. Use Binks 1M Airless spray-gun or equal with preferably changeable spray tips. Consult Powercrete® for specific information.
Step 3	Part A must be heated up and maintained to a temperature of 54°C (130°F) and Part B must be heated up and maintained at 20-30°C (68-86°F).
Step 4	Apply Powercrete® DD in the recommended DFT. Use a WFT gauge to check. Do not dilute the product.

Curing Times at 25°C (77°F)	
Gel Time:	39 minutes
Dry time:	2.5 hours
65 shore D:	7.75 hours (ready for Holiday test)
75 shore D:	10 hours (full cure)
Cure time is based on 40 mils (1000micron) DFT. Recoat interval at 21°C (70°F) is 30-120minutes and 10-15 minutes at 65°C (150°F).	

Additional Information	
Documentation	Application instructions and other documentation can be obtained by contacting our head office or by sending email to info@corrosioncoatings.com
Certified staff	Application of the described coating system should be carried out and inspected by certified personnel.

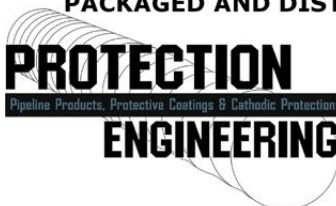
Inspection and Repair	
Inspection	The finished coating must be visually inspected for any defects, such as runs and sags, fisheyes, blistering, pinholes, missed spots and possible contaminants. Pinhole/Holiday detection must generated according to NACE SP0188.
Coating Thickness	The coating thickness (DFT) must be within the specified DFT range. Use calibrated equipment and measure according to SSPC-PA 2 or other specified standard.
Repair	Pinholes/Holidays must be located and repaired with approved material. Consult Powercrete [®] for specific information. Retest the repaired area.

Cleaning	
Cleanup	Use Acetone or MEK.

Handling	
General	Transport and stacking is possible after full cure of the coating and generating a Holiday test (NACE SP0188). This time can be reduced by increasing the curing temperature. Consult Powercrete [®] for specific information.

General Order Information	
Product	Powercrete[®] DD. <u>Product dimensions and contents:</u>
Drum	
Part A	40 gal/151.4 l (600 lb/272.2 kg)
Part B	55 gal/208.2 l (450 lb/204.1 kg)
Pail	
Part A	5 gal/18.9 l (75 lb/34 kg)
Part B	5 gal/18.9 l (40 lb/18.1 kg)
Kit Options	
	1.32 gal/5 l (20 lb/9.1 kg)
	0.66 gal/2.5 l (10 lb/4.5 kg)
	0.26 gal/1 l (4 lb/1.8 kg)
	0.13 gal/0.5 l (2 lb/0.9 kg)
Cartridges	NA.
Handling	Handle with care. Keep containers upright.
Storage	Store indoor, clean and dry, away from direct sunlight in a cool place between 18-30°C (65-85°F). Keep from freezing. Shelf life 24 months in the original unopened containers.

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